

TEST REPORT

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (1) / (42) pages

1. Applicant

- Name : SOLUM CO.,LTD.
- Address : 7F, 2354, Yonggu-daero, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
- Date of Receipt : 2026-04-03

2. Manufacturer

- Name : SOLUM CO.,LTD.

3. Use of Report : For FCC Certification & ISED Certification**4. Test sample / Model** : Newton E-Paper 32" / EL315TVW6S**5. Date(s) of test** : 2026-04-17 to 2026-05-13**6. Test Standard (Method) used** : FCC 47 CFR part 15 subpart C 15.247,
ANSI C63.10, RSS-247, RSS-Gen**7. Testing Environment** : refer to 8 page**8. Test Results** : Compliance**9. Location of Test** : ☒ Permanent Testing Lab ☐ On Site Testing

(Address : 5, Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, 17141 Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This report cannot be reproduced or copied without the written consent of CTK.

Approval	Tested by:  Seong-uk Park (Signature)	Technical Manager:  Young-taek Lee (Signature)
----------	--	---

2026-09-02

CTK Co., Ltd.



**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (2) / (42) pages

REPORT REVISION HISTORY

Date	Revision	Page No
2026-09-02	Issued (CTK-2026-02452)	all

This report shall not be reproduced except in full, without the written approval of CTK Co., Ltd. This document may be altered or revised by CTK Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by CTK Co., Ltd. will constitute fraud and shall nullify the document.

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (3) / (42) pages

CONTENTS

1. General Product Description	4
1.1 Applicant Information	4
1.2 Manufacturer Information	4
1.3 Product Information	4
1.4 Peripheral Devices	5
2. Accreditations	6
2.1 Laboratory Accreditations and Listings	6
2.2 Calibration Details of Equipment Used for Measurement	6
3. Test Specifications	7
3.1 Standards	7
3.2 Mode of operation during the test.....	8
3.3 Measurement Uncertainty	8
3.4 Test Software	8
3.5 Testing Environment	8
4. Technical Characteristic Test	9
4.1 6dB Bandwidth & 99% Bandwidth.....	9
4.2 Maximum peak conducted output power	15
4.3 Transmitter Power Spectral Density	19
4.4 Conducted Spurious emission.....	23
4.5 Radiated Emission	27
4.6 AC Conducted Emissions	40
APPENDIX A – Test Equipment Used For Tests	42

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (4) / (42) pages

1. General Product Description

1.1 Applicant Information

Company	SOLUM CO.,LTD.
Contact Point	7F, 2354, Yonggu-daero, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Contact Person	Name : Ki Dong Lee E-mail : kdlee007@solu-m.com Tel : +82-31-8006-7677

1.2 Manufacturer Information

Manufacturer	SOLUM CO.,LTD.
Address	7F, 2354, Yonggu-daero, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Factory #1	SOLUM VINA CO., LTD
Factory #1 Address	Plot B3, Ba Thien II Industrial Park, Thien Ke Ward, Binh Xuyen District, Vinh Phuc Province, VIETNAM

1.3 Product Information

FCC ID	2AFWN-EL315TVW6S
IC	22800-EL315TVW6S
Product Description	Newton E-Paper 32"
Model name	EL315TVW6S
Variant Model name	EL315TVW6S/WWW (For the EL315TVW6S/WWW variants, the RF specification has been changed from the base model's 2.4GHz SRD to Bluetooth LE due to software modifications. There are no changes to the WLAN, nor are there any other hardware changes.) EL315HVVW6S/WWW (For the variant models EL315HVVW6S/WWW, has no technical differences with each model except for the model name for marketing purposes.)
Operating Frequency	2 412 MHz – 2 462 MHz (20 MHz_BW)
RF Output Power	802.11b : 17.14 dBm (51.761 mW) 802.11g : 13.51 dBm (22.439 mW) 802.11n_HT20 : 13.39 dBm (21.827 mW)
Antenna Specification	Antenna type : PCB Patch Antenna Peak Gain : 3.46 dBi
Antenna Configurations	802.11b : SISO 802.11g : SISO 802.11n_HT20 : SISO
Number of channels	11 (802.11b/g/n_HT20)
Type of Modulation	802.11b : DSSS 802.11g/n : OFDM
Data Rate	802.11b : 11 / 5.5 / 2 / 1 Mbps 802.11g : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps 802.11n: up to 300 Mbps
Power Source	DC 3.7 V(Battery)

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (5) / (42) pages

FVIN

V049(EL315TVW6S, EL315HVVW6S/WWW),
V008(EL315TVW6S/WWW)

1.4 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Notebook	Samsung Electronics Co., Ltd	550XDA	KQFJ99YRA002J0
AC Adapter	Samsung Electronics Co., Ltd	PA-1400-96	CN60BA4400295AD2VHNCHF042

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (6) / (42) pages

2. Accreditations

2.1 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	CN : 8737A CAB ID : KR0025
KOREA	NRRA	KR0025

2.2 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (7) / (42) pages

3. Test Specifications

3.1 Standards

Section in FCC	Section in RSS	Requirement(s)	Status (Note 1)	Test Condition
15.247(a)	RSS-247 6.3.1(a)	6 dB Bandwidth & 99% Bandwidth	C	Conducted
15.247(e)	RSS-247 6.3.1(b)	Transmitter power spectral density	C	
15.247(b)	RSS-247 5.3.2	Maximum peak conducted output power	C	
15.247(d)	RSS-247 6.6	Unwanted emission	C	
15.209	RSS-Gen 6.13	Transmitter emission	C	Radiated
15.207	RSS-Gen 8.8	AC Conducted Emission	C	Line Conducted
<u>Note 1:</u> C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable				
<u>Note 2:</u> The data in this test report are traceable to the national or international standards.				
<u>Note 3:</u> The sample was tested according to the following specification: FCC Part 15.247, RSS-247 Issue 4				
<u>Note 4:</u> The tests were performed according to the method of measurements prescribed in KDB No.558074. ANSI C63.10-2020+Cor 1-2023+C63.10a-2024+Errata to C63.10a-2024, RSS-Gen Issue 5.				
<u>Note 5:</u> This equipment has been tested in a 100% duty cycle transmission situation using applicant supplied software.				

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (8) / (42) pages

3.2 Mode of operation during the test

The EUT is operated in a manner representative of the typical of the equipments.
During at testing, system components were manipulated within the confines of typical usage to maximize each emission. All modulation modes were tests.
The results are only attached worst cases.

Test Frequency & Bandwidth

802.11b/g/n

Bandwidth	Lowest channel	Middle channel	Highest channel
20 MHz	2 412 MHz	2 437 MHz	2 462 MHz

3.3 Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor $k = 2$, Confidence levels of 95 %

Description	Uncertainty
Conducted RF Output Power	0.46 dB (C.L.: Approx. 95 %, $k = 2$)
Power Spectral Density	1.5 dB (C.L.: Approx. 95 %, $k = 2$)
Occupied Bandwidth	1.00 kHz (C.L.: Approx. 95 %, $k = 2$)
Unwanted Emission(conducted)	0.54 dB (C.L.: Approx. 95 %, $k = 2$)
Radiated Emissions ($f \leq 1$ GHz)	4.11 dB (C.L.: Approx. 95 %, $k = 2$)
Radiated Emissions ($f > 1$ GHz)	4.34 dB (C.L.: Approx. 95 %, $k = 2$)
Line Conducted Emission	2.06 dB (C.L.: Approx. 95 %, $k = 2$)

3.4 Test Software

Conducted Test	Ics Pro Ver. 6.0.3
Radiated Test	EP5RE Ver. 6.0.10, ES10 Ver. 2022.04.000
Line Conducted Test	EMC32 Ver. 10.50.00

3.5 Testing Environment

Test Item	Test Date	Temperature (°C)	Relative Humidity (%)
6 dB Bandwidth	2026-04-17 ~ 2026-05-13	(22 ~ 25) ± 1	(31 ~ 32) ± 3
Maximum Output Power			
Conducted Spurious emission			
Unwanted Emission(Conducted)			
Transmitter Power Spectral Density			
Radiated Emissions ($f \leq 1$ GHz)	2026-04-20, 2026-04-24	20 ± 1 , 20 ± 1	34 ± 3 , 24 ± 3
Radiated Emissions ($f > 1$ GHz)	2026-04-23 ~ 2026-05-13	(22 ~ 25) ± 1	(31 ~ 32) ± 3
AC Conducted Emissions	2026-04-29	19 ± 1	42 ± 3

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (9) / (42) pages

4. Technical Characteristic Test

4.1 6dB Bandwidth & 99% Bandwidth

Test Procedures

KDB 558074 - Section 8.2
ANSI C63.10-2020 - Section 11.8.2

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Procedures

ANSI C63.10-2020 - Section 6.9
RSS-Gen – Section 6.7

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

Test Settings :

Center frequency = the highest, middle and the lowest channels

a) RBW = 100 kHz (6dB Bandwidth)

b) VBW $\geq 3 \times$ RBW

1% to 5% of the OBW kHz

(99% Bandwidth)

c) Detector = peak

d) Trace mode = Max hold

e) Sweep = auto couple

f) Allow trace to fully stabilize

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Minimum Standard :

6 dB Bandwidth > 500kHz

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (10) / (42) pages

Test Data :

Mode	6 dB Bandwidth and 99 % Bandwidth (MHz)					
	802.11b		802.11g		802.11n_HT20	
Frequency	6 dB	99 %	6 dB	99 %	6 dB	99 %
2 412 MHz	10.08	14.58	16.55	16.57	17.70	17.67
2 437 MHz	10.08	14.61	16.55	16.55	17.70	17.68
2 462 MHz	10.08	14.65	15.74	16.03	16.57	17.21

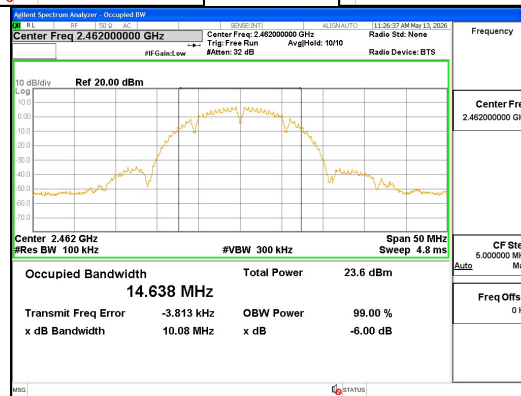
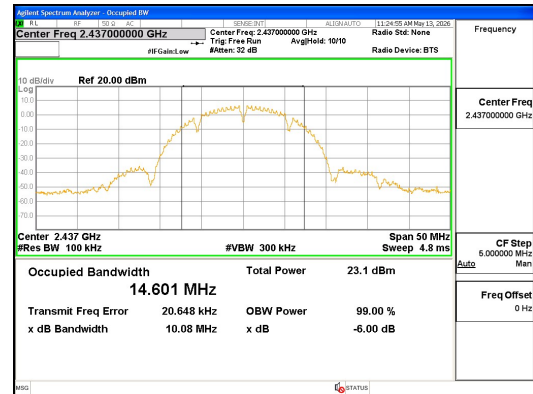
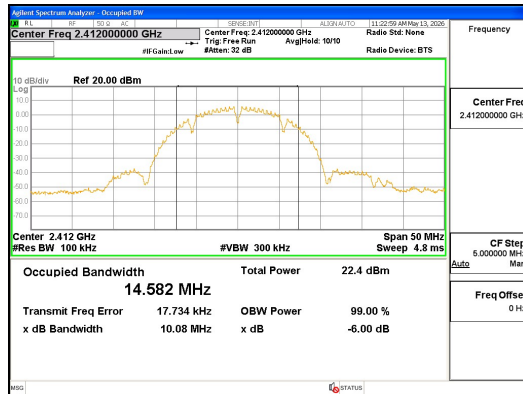
See next pages for actual measured spectrum plots.



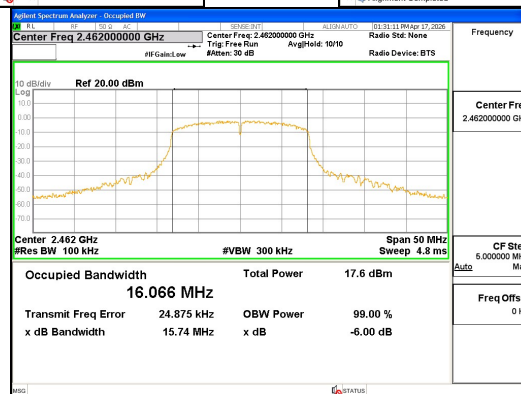
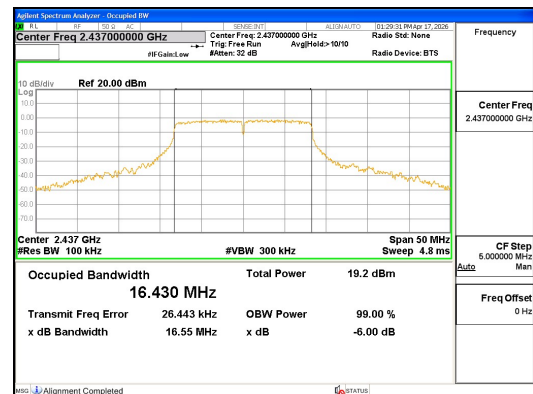
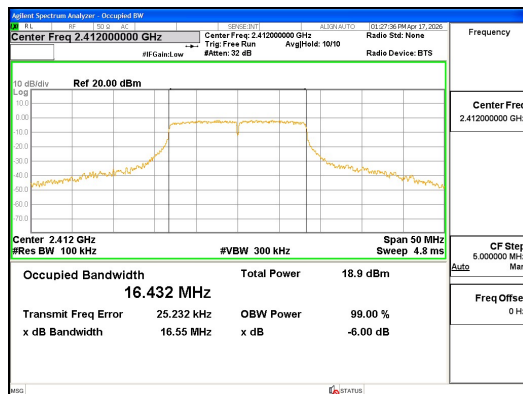
CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

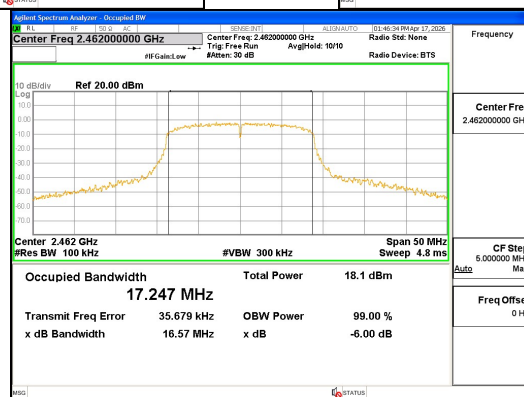
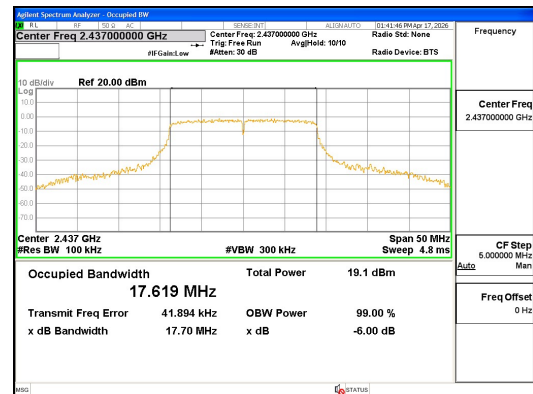
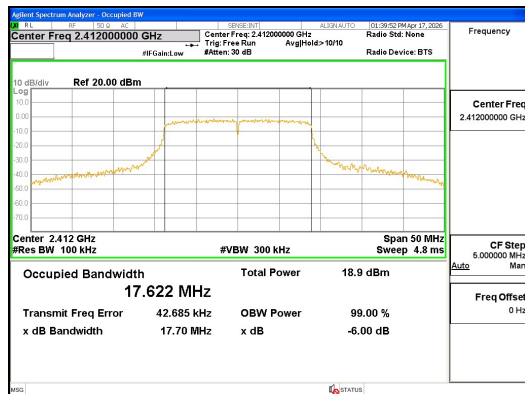
REPORT No.:
CTK-2026-02452
Page (11) / (42) pages



802.11b, 6dB Bandwidth



802.11g, 6dB Bandwidth



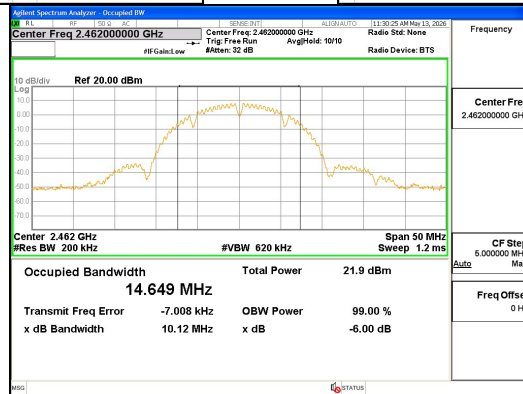
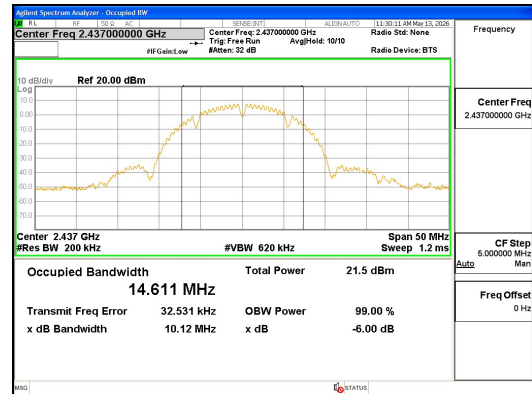
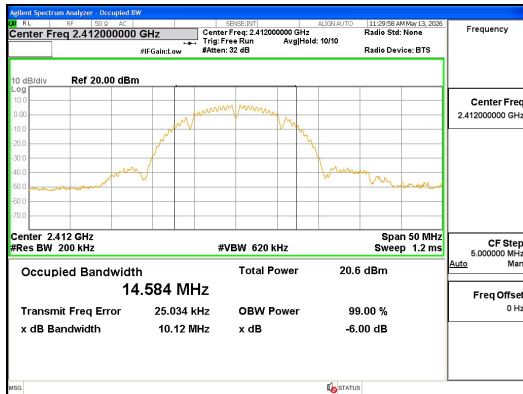
802.11n_HT20, 6dB Bandwidth



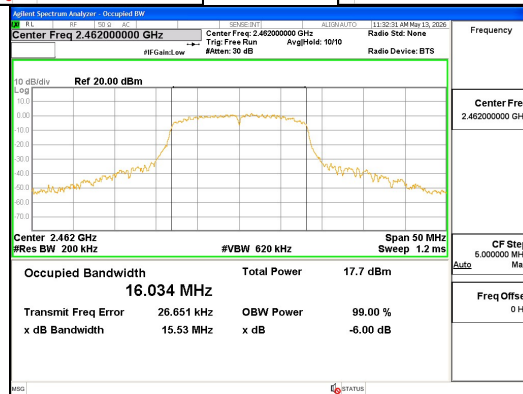
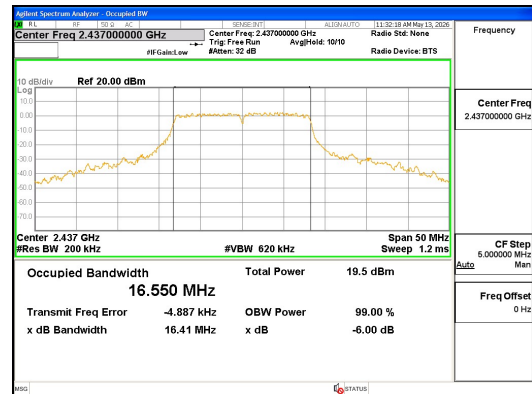
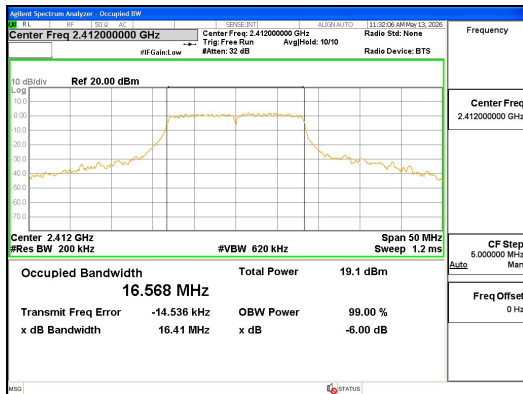
CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

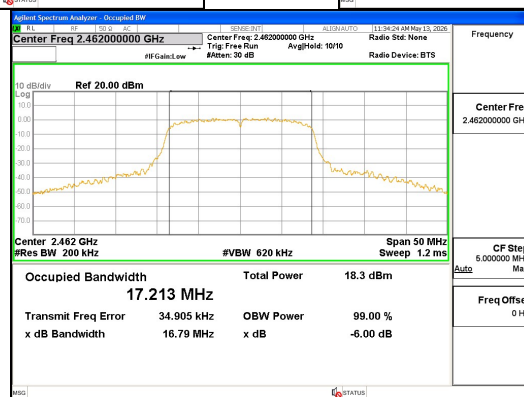
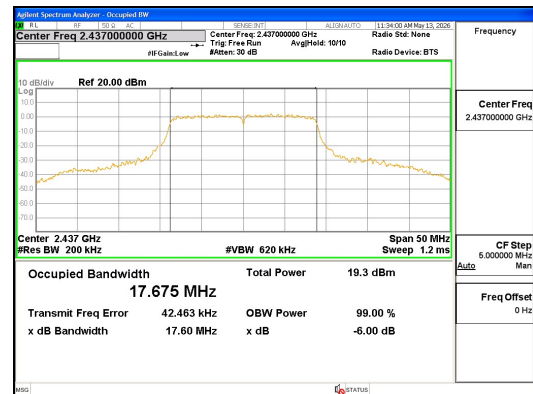
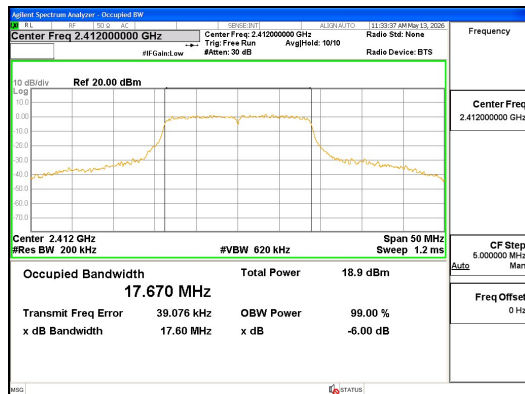
REPORT No.:
CTK-2026-02452
Page (13) / (42) pages



802.11b, 99% Bandwidth



802.11g, 99% Bandwidth



802.11n_HT20, 99% Bandwidth

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (15) / (42) pages

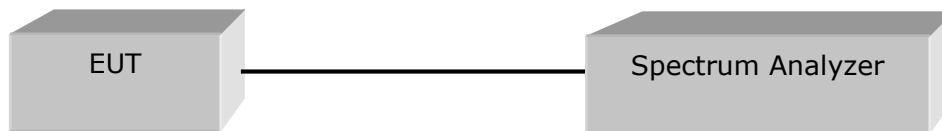
4.2 Maximum peak conducted output power

Test Procedures

<802.11b/g/n mode>

KDB 558074 - Section 8.3.2.2 (Average Power)
ANSI C63.10-2020 - Section 11.9.2.2

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.



Test Settings:

Center frequency = the highest, middle and the lowest channels

- | | |
|--------------------------------------|-------------------------|
| a) span $\geq 1.5 \times \text{OBW}$ | b) RBW = 1 MHz |
| c) VBW $\geq 3 \times \text{RBW}$ | d) Sweep time = auto |
| e) Detector = RMS | f) average at least 100 |

Limit

Operating Mode	Mode	ANT Gain (dBi)	Limit (dBm)
SISO	802.11b/g/n	3.46	30.00

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (16) / (42) pages

Test Data :

Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11b	2 412	15.97	30	11.13
	2 437	16.67	30	10.83
	2 462	17.14	30	10.91
802.11g	2 412	13.08	30	12.94
	2 437	13.51	30	13.33
	2 462	11.92	30	12.34
802.11n _HT20	2 412	13.13	30	13.36
	2 437	13.39	30	14.06
	2 462	12.34	30	13.39

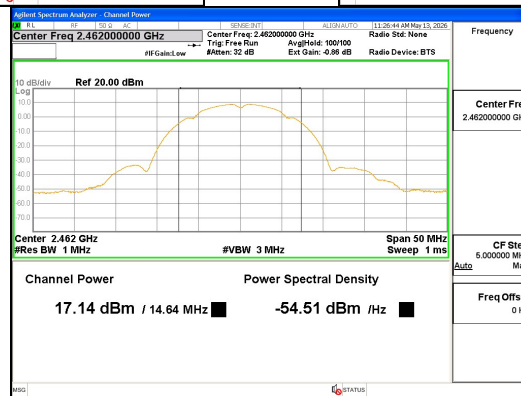
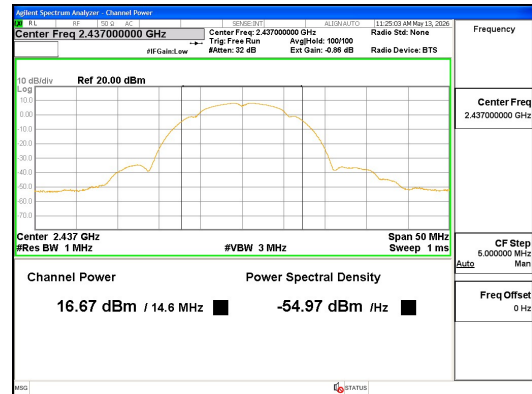
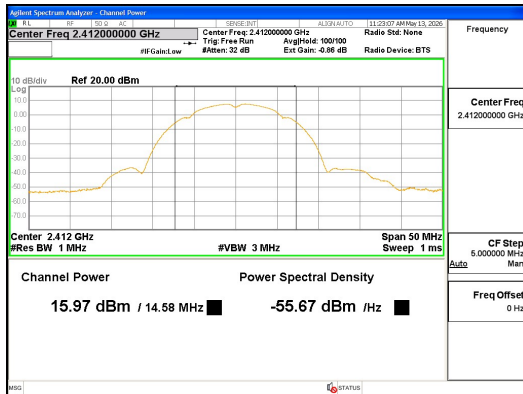
See next pages for actual measured spectrum plots.



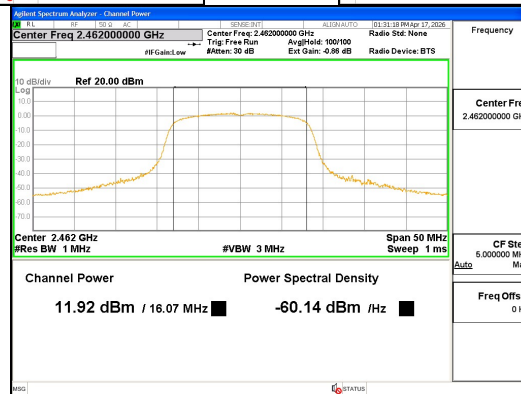
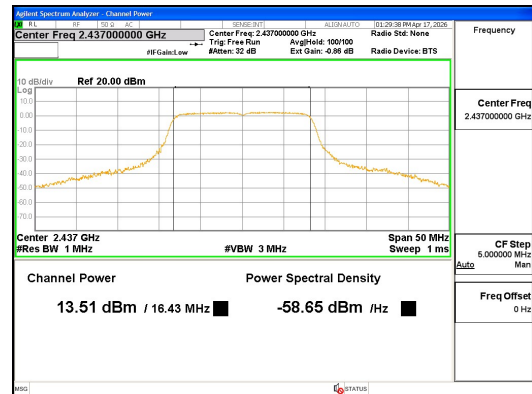
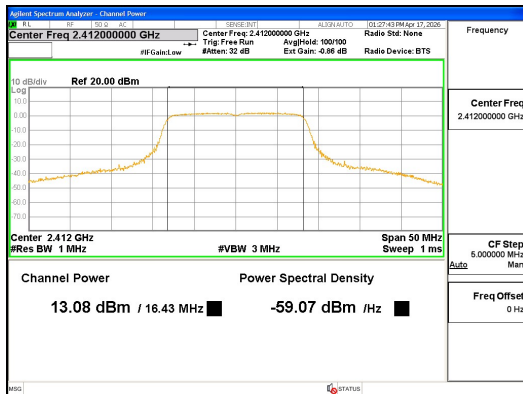
CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (17) / (42) pages



802.11b



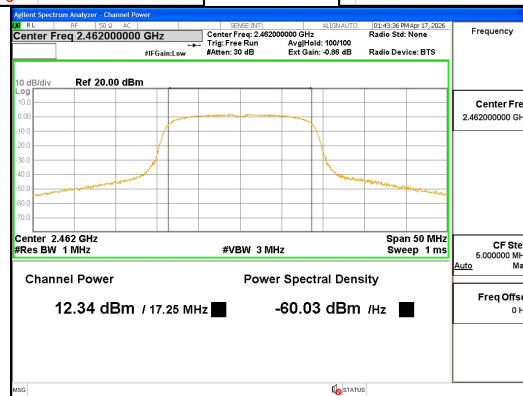
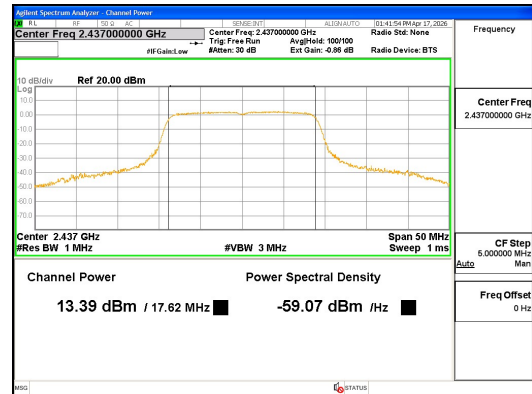
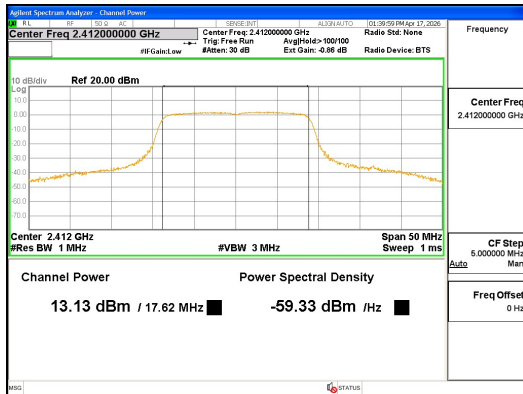
802.11g



CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (18) / (42) pages



802.11n_HT20

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (19) / (42) pages

.3 Transmitter Power Spectral Density

Test Procedures

KDB 558074 - Section 8.4

ANSI C63.10-2020 - Section 11.10.2

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) RBW : $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
- b) VBW $\geq 3 \times \text{RBW}$
- c) span $\geq 1.5 \times \text{DTS bandwidth}$
- d) Sweep time = auto couple
- e) Detector = peak
- f) Trace mode = max hold
- g) Allow trace to fully stabilize
- h) Use the peak marker function to determine the maximum amplitude level within the RBW.

Limit

Operating Mode	Mode	ANT Gain (dBi)	Limit (dBm)
SISO	802.11b/g/n	3.46	8.00

**CTK Co., Ltd.**

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 17142, Korea
Tel: +82-1551-9871
Fax: +82-31-624-9501

REPORT No.:
CTK-2026-02452
Page (20) / (42) pages

Test Data

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Margin(dB)
802.11b	2 412	-13.61	8	7.93
	2 437	-13.05	8	4.62
	2 462	-12.52	8	6.30
802.11g	2 412	-15.21	8	16.40
	2 437	-14.77	8	17.76
	2 462	-15.05	8	16.11
802.11n _HT20	2 412	-14.93	8	15.81
	2 437	-14.68	8	16.76
	2 462	-15.03	8	15.88

See next pages for actual measured spectrum plots.